CHAPTER 29

PEDESTRIAN AND AMERICAN DISABILITIES ACT (ADA) FACILITIES

29.1 General

This chapter sets forth the minimum criteria to be used in the design of all sidewalks, curb ramps, and other pedestrian facilities within the right-of-way (ROW), or other public easements.

29.2 AASHTO Reference

"A Policy on Geometric Design of Highways and Streets", as published by AASHTO, the American Association of State Highway and Transportation Officials, was used as a reference within this chapter.

29.3 ADA Requirements

All pedestrian facilities shall be designed in accordance with **ADA** regulations and the requirements of these Standards, whichever is safer for pedestrians, and also meet Traffic Safety Division's (DDOT) requirements.

Overview of ADA: "No qualified individual with a disability shall, by reason of such disability, be excluded prom participation in or be denied the benefits of the services, programs or activities of a public entity."

Non-discrimination on the Basis of Disability in State and Local Government [28 CFR 35.104] Definitions: "Disability means, with respect to an individual, a physical or mental impairment that substantially limits one or more of the major life activities of such individual; a record of such an impairment; or being regarded as having an impairment." "Facility means all or any portion of buildings, structures, sites, complexes, equipment, rolling stock or other conveyances, roads, walks passageways, parking lots or other real or personal property, including the site where the building, property, structure, or equipment is located." "Public entity means (1) Any State or local government; (2) Any department, agency, special purpose district, or other instrumentality of a state or States or local government." "State means each of several States, the District of Columbia, …"

29.4 Sidewalks

29.4.1 General Layout and Design Criteria

All public sidewalks shall comply with the requirements of the ADA Accessibility Guidelines, which includes without limitations, sidewalk widths, grades, locations, markings, surface treatments, and curb ramps.

The Public Space Permits and Record Branch maintains a **Designated Street Distribution** (card file) for each street within the District of Columbia. This Designation Street Distribution contains information for each street and these designated widths are the minimum requirements each street must meet. The overall designated public space street width is called the street's right-of-way. Located within this right-of-way is the designated width for the roadway, sidewalks, and/or parking located on both sides of the street.

Whenever there are any changes or improvements made within the public space area of each street, these designated widths must be maintained. These designated street widths may vary from block to block.

These sidewalk width designations are important when installing curb lay-bys for vehicles and circular driveways, as there is a required minimum, which must be met for pedestrian's safety before the Traffic Safety Division will allow vehicles to encroach within the designated sidewalk widths. (**Definition:** a lay-by is a paved area beside a main road where vehicles can stop temporarily)

When there is no designated sidewalk width, then the minimum sidewalk width adjacent to the installation of a lay-by will be 10 ft. This will allow for the typical vehicle door's opening (3'-8") and a minimum 6 ft. clear path for the pedestrians to walk by. This minimum 10 ft. width allows a disabled person room to maneuver when entering and exiting a vehicle in a safe manner, without impeding the other pedestrians walking along the sidewalk.

Whenever any changes are made within the public space right-of-way of a street, a written justification is required stating what part of the street's right-of-way is being changed and the reason for this change. The Traffic Services Administration requires all affecting agencies within the District of Columbia to state their comments about the subject changes. They also require the agencies to concur in writing whether they are in agreement or not in agreement via a formal consent form. Any proposed change of the street's right-of-way is subject to approval by the Director, Department of Transportation (DDOT).

29.4.1.1 Sidewalk Widths

- Minimum Sidewalk Widths at Bus Stops – Minimum sidewalk with at bus stops shall be 6 ft., a traffic safety requirement.
- Minimum Sidewalk Width - Minimum sidewalk width shall be 6 ft.
- Additional Sidewalk Width - The District Project Manager may require additional width for activity areas and routes leading to these areas. The final sidewalk width shall be determined through additional study of higher pedestrian traffic areas.

Most persons will avoid the area less than 30 in. away from the edge of the roadway and 18 – 30 in. from a building façade. Additionally, the presence of street furniture and other features will also reduce the effective width of a pathway for pedestrians. The minimum pathway must be no less than 36 in. However, if the existing sidewalk width is less than 36 inches, "passing pads" measuring 60" x 60" must be constructed every 200 ft. to allow disabled persons to pass one another. Crossing driveways and alleys are considered "passing pads".

29.4.1.2 Sidewalk Both Sides of Street

All new street designs shall include sidewalks on both sides of the street. All projects should consider the need for a sidewalk. Sidewalks should be included in projects if the pedestrian volume warrants a sidewalk or if the street is on a typical walkway to schools. For existing streets, the community should be consulted when the project consists of installing a new permanent sidewalk or replacing a temporary sidewalk with a permanent sidewalk.

29.4.1.3 Slope

- Cross Slope – Maintain 2 percent (maximum) or ¼ in. per ft. sidewalk cross slope towards the roadway. Maximum cross slope for sidewalks shall be 3 percent only as directed, since 3 percent does **NOT** meet ADA requirements.
- Longitudinal Slope - Longitudinal slope shall be consistent with the street slopes but should not exceed 8 percent. Maximum longitudinal slopes are limited to 8 percent in all new development construction.
- ADA Requirements for Steeper Longitudinal Slopes - Sidewalks detached from the curb, with greater than 5 percent longitudinal slope, shall be constructed to meet ADA requirements.

29.4.1.4 Horizontal/Vertical Curves

Horizontal/vertical curves on all sidewalks shall follow the design criteria for bikeways.

29.4.1.5 Vertical Clearance

Sidewalk vertical clearance shall be 8 ft. The minimum distance (vertical clearance) to the bottom of a street sign or other feature in the sidewalk shall be no less than 7 ft.

29.4.1.6 Horizontal Clearance

Sidewalk horizontal clearance shall be a minimum of 2 ft.

29.5 Curb Ramps

29.5.1 Ramp Requirements

The curb ramps will be designed with stamped concrete in historic and business districts when directed by the Project Manager. Curb ramps shall be installed at all intersections and at certain mid-block locations for all new construction or reconstruction of curb and sidewalk, as follows:

- If a public walkway or bikeway intersects the street, a ramp shall be provided to connect the walkway to the street. A landing is required at the top of a ramp that shall connect to a travel route that is at least 36 in. wide. At the top of the ramp there shall be a preferred 5 ft. of clearance or a 4 ft. minimum clearance. The transition from the ramp to the gutter shall be flush. All ramps shall be concrete or stamped concrete, which resembles brick, with 24 inch wide Truncated Domes at the bottom of the 4 ft. wide ramp surface.
- All pedestrian facilities on and along sidewalks shall be accessible including signal actuators, telephones, drinking facilities, kiosks, sidewalk cafes, etc.
- Plans shall indicate where the existing sidewalks, grass areas, and tree spaces are required to be replaced, to be repaired, or to be maintained.

The following are the DDOT requirements for curb ramps that include the **ADA Regulations** for curb ramps:

- It is not recommended to provide curb ramps at the center of corners at roadway intersections. All the ramps to be located at the corner center must be pre-approved by the Traffic Safety Division.
- Install two curb ramps, on each corner, one for each direction of travel.

- The entire curb ramp, (4 ft. width) must be located within the crosswalk. Note that the side flares do NOT have to be located within the crosswalk to comply with ADA. The corner edge of the ramp must align with the back edge line of crosswalk.
- The ramp width is 4 ft. The length of the ramp depends on curb height, considering a maximum slope of 1/12. The side flare width is 2 ft. while the flare slope is 1/10. Provide landing at the top of the ramp 4 ft. minimum, to allow the wheelchair to turn. See section below on Detectable Warnings and also on installation of truncated domes.
- In the light of the above requirements, crosswalk width shall be a 15 ft. minimum and it may be increased up to 20 ft., to allow for the ramp accommodation. Before the crosswalk width is increased to 20 ft. where a traffic signal is involved, the Traffic Services Administration's, Signal Branch must be contacted to insure there is no conflict with the signalization.
- Move and adjust the curb ramp to a location, which allows for the accommodation of the ramps properly, using the required ramp geometry, dimensions, and slopes as per the Standards.
- Curb ramps shall be indicated to scale and proportionate with drawings. Do not use different shapes of curb ramps.
- The curb ramp has top priority at a corner intersection above all other features. When new construction is taking place, the streetlights, traffic signals, control cabinets, and catch basins are relocated out-of-the-way of these ramp locations.
- Sidewalks shall be flush with driveways and alleys. Curb ramps shall not be located on both sides of the alley or driveway entrances. See section below on Detectable Warnings.

29.5.2 Mobility Aids Requires Minimum Sidewalk Passage Widths (Data provided by Paralyzed Veterans of America Architecture, Washington, D.C.)

Crutches used for walking are angled approximately 6 in. away from the body for greater stability, so slightly wider corridors and outdoor walks are desirable. Measure an additional 6 in. from each shoulder of a person. A typical average adult requires 2'-6" for standing still width and a walking stride is 2'-8" long.

Walkers provide some support for users but primarily are used to help maintain balance. Walkers are flared for stability. The handgrip width is typically 16 ½ to 18 in. and the base width is typically 24 in. Basket, or rolling walkers have three or four wheels and various types of hand

brakes. They also may have a shopping basket and/or seat. The width of most rolling models is 27 to 28 in.; the height of a walker is usually between 32 to 36 in.

Long canes used for detection – assist persons who are blind or visually impaired to detect obstructions in their path of travel. Long canes are typically 36 to 48 in. long. Long canes may be used in either the "touch" technique (the cane is moved side to side, touching the floor surface 6 – 8 in. outside of each shoulder of the person). This touch technique requires 28 to 34 in. wide path while the "diagonal" technique (the angle of the cane is held stationary with the tip just above the ground surface area) requires 2'-8" to 3 ft. width.

Manual wheelchairs are hand-propelled using rims mounted on large front or rear drive wheels. They are available in many different models and sizes and with a variety of removable or adjustable accessories. The width and length of wheelchairs vary significantly with the design of the chair. The widest standard model is approximately 26 in.; however, special accessories can increase this standard width. The typical length of the wheel chair is 42 in. plus an additional 6 in. for footrest area in front of the chair.

Scooters have either three or four wheels. Three-wheeled models are more maneuverable but less stable then four-wheeled models. The scooters typical width is 21 to 24 in. A typical length is between 3'-7" to 4'-0".

Electric scooters and motorized wheelchairs are propelled by electric motors powered by rechargeable batteries below the seat. Motorized wheelchairs are similar in overall size to manual wheelchairs, but are heavier and generally less moveable. They are 22 to 24 in. wide and are 40 to 44 in. long.

29.5.2.1 Vehicles Adapted for Wheelchair and Scooter Users

- A variety of private and commercial vehicles can provide transportation for wheelchair and scooter users. These vehicles often require special parking and drop-off arrangements so that users can access the vehicles. Most accessible commercial transit vans and some private vehicles may also require additional vertical clearance to accommodate their increased overall height. For most users, the major factor in private vehicle selection is whether they can transfer to the car or van seat in order to drive or whether they drive seated in their wheelchair.
- Private Automobiles: In order for wheelchairs users to enter and exit automobiles, a clear access aisle is required beside the vehicle. The aisle width must allow for wheelchair passage and

permit the chair to be positioned at an angle for transfer to the driver or passenger seat.

- Lift- and Ramp-Equipped Private Vans: The three most common types of wheelchair lefts are side door- or rear door-mounted platform lefts or side door-mounted rotary lifts. Platform lifts are mechanically raised and lowered with either linear tracks or parallel arms. For designers, the important feature common to all lifts is that the user rolls on or off the platform straight ahead. This procedure requires extra ground space wider on the passenger side or behind the van for the chair to roll of the lift. Rotary lifts can be installed at the side door to swing out in an arc that will realign the wheelchair parallel to the van before it is lowered to the ground. A rotary lift significantly reduces the required aisle width.
    - Both the side and rear platforms requires 8 ft. minimum adjacent aisle widths.
    - Side Rotary requires 5 ft. minimum adjacent aisle width.

- Some Minivans can be equipped with automatically deployed ramps that can be lowered to the ground or the sidewalk from the passenger side door.
- When the ramp user enters or exits straight ahead, ramp-equipped vehicles also require a generous side access aisle, approximately the same as for a platform lift.
- Lift-Equipped Commercial Transit Vans: Most commercial transit vans are equipped with slightly larger platform lifts than private vehicles, necessitating generous access aisles. These vans must meet minimum ADA requirements for lift platform size and interior headroom.

29.5.3 Use of Standard Details

Project drawings shall call out the specific Standard Drawing to be used in construction for each curb ramp.

29.6 Underwalk Drains (Chases)

Under-walk drains shall not interfere with the pedestrian's use of the sidewalk. The chase plate shall be flush with the sidewalk surface and be securely fastened as specified. Under-walk drains shall not be located within a curb ramp, curb cut, or driveway.

29.7 Pedestrian Crossings

Crosswalks will be required at all signalized intersections, school areas, and high pedestrian areas. Crosswalks may be required at mid-block crossings in neighborhoods, activity centers, trail or path crossings and school crossings when approved by the Traffic Services Administration. Local streets longer than 600 ft. may require additional accesses, which should be spaced approximately 300 ft. apart. If mid-block ramps are used, pavement markings and signing in accordance with the **Traffic Control** chapter of this manual shall be provided.

The crosswalks should line up with the curb ramp. The entire curb ramp must be located within the crosswalk, including side flares. The crosswalk lines shall be perpendicular to the centerline of the roadway except in intersections that are skewed. The crosswalks shall be positioned in accordance with the Traffic Services Administration's requirements. The crosswalks will be designed with brick or stamped concrete in historic and business districts when directed by the Project Manager. All sidewalks that cross over driveways and alleys shall be designed in accordance with ADA Standards. Sidewalk grades are to be maintained at driveways. There shall not be crosswalks in cross-pans. Definition: The crosspan is the swale portion of a driveway apron that carries water from one side to the other.

29.8 Hearing Impairments

Individuals with hearing impairments may encounter barriers that center around spoken information and audible warning communication, as vision is relied upon for information needs. Danger may occur when alarms such as automobile horns or fire alarms are not accompanied by flashing lights or other visual cues. Clear signage is important to persons with hearing impairments when verbal communication is not possible.

29.9 Tactile Warning Strips (Detectable Warnings): A Traffic Safety Division Requirement

Differences in paving materials can provide tactile cues to aid negotiation and identify hazards. Truncated domes are a detectable warning device used on walkway surfaces and curb ramps to warn visually impaired persons of abrupt grade changes and hazardous vehicular areas. Detectable warning strips are used at potentially dangerous exits such as corners and mid-block crossings, water fountains, and other obstructions to warn visually impaired persons of abrupt grade changes.

At sidewalk grade changes leading to retail businesses detectable warning strips are needed at both the top and the bottom of stairways. Truncated domes are also used in hazardous locations when a walking surface and vehicular driveways and/or alleys cross or adjoin and are not separated by curbs or other elements, and on all ramp locations.

29.10 Pedestrian Refuge Areas

Provide a pedestrian refuge of at least 6 ft. long in the direction of pedestrian travel when driveway width is 25 ft. and over. A pedestrian refuge area shall be created in the median to increase pedestrian safety. The vehicle turning radii must be taken into account with the specific design of islands. The District requires delineation of the pedestrian crossing by using a different surface material or texture in the roadway; this guides the sight-impaired to the refuge area.

29.11 Multi-Use Paths

Where a single, multi-use path is used to serve both pedestrians and bicyclists, the minimum path width shall be 10 ft.

29.12 Pedestrian Minimum Clear Path

The minimum clear path around utility structures, street furniture and other encroachments shall be greater or equal to the sidewalk width. The minimum width is 36 inches.

29.13 Bus Shelters

29.13.1 Location

The Washington Metropolitan Area Transit Authority (WMATA) shall determine the location of the bus shelter. The Project Manager will contact the Department's Mass Transit Division for coordination.

The Traffic Safety Division requires a minimum clear 8 ft. long sidewalk parallel to the curb of the street and adjacent to the front doors of the bus. This area must be free of any obstacles and it must have a minimum 6 ft. sidewalk depth to allow the bus handicap kneeler to operate for receiving wheelchair users. An 8 ft. minimum clear zone area is required at all bus stops. Shelters can no longer be put within this area and should not block the existing sidewalk width for pedestrians using the sidewalk but not boarding a bus.

29.13.2 Visibility

Bus shelters shall have maximum transparency, and be highly visible from the surrounding area to ensure the users' safety. The shelter may not be located within sight distance triangles.

29.13.3 Minimum Size and Capacity

- Opening Size - Openings shall be at least 36 in. wide and shall meet the requirements of **ADA**.
- Capacity and Size - Capacity shall be based on maximum passenger accumulation at the stop. The shelter size shall be based on approximately 5 sq. ft. per person.
- Placement - Shelters shall not obstruct pedestrian flow or motorist's sight distance.
- The minimum pedestrian path width of 6 ft. shall be maintained at bus shelters.
- All bus stops shall have a minimum sidewalk width of 8 ft. for the front doors of the bus and a minimum of 6 ft. provided for the rear doors. There is a standard 24 ft. distance between the front and back doors of the bus.

29.13.4 Pad Requirements

- Under Shelters - The design shall include a 6 in. thick concrete pad under all bus shelters. The pad shall extend at least 6 in. past each edge of the shelter.
- Passenger Loading Area - Any shelters next to detached sidewalks shall include a minimum 15 ft. wide concrete area between the sidewalk and the curb for passenger loading and unloading.

29.13.5 Relocation of Shelters

The District Project Manager may require a shelter to be relocated or removed in the future to accommodate other needs within the street right-of-way. The Project Manager will contact the Department's Mass Transit Division for relocation request.

29.13.6 Bicycle Racks and Trash Containers

All shelters are required to provide one trash container and one bicycle rack.

29.13.7 Shelters on Highways

Approval for installations of all bus shelters proposed in the District Rights-of-Way shall be obtained from DDOT, Office of Mass Transit, prior to any construction of the shelters.

29.14 Bus Stops

The Washington Metropolitan Area Transit Authority (WMATA) shall determine the location of the bus stops. The Project Manager will contact the Department's Mass Transit Division for coordination.

29.14.1 Bus Stop Spacing Requirements

The bus stop locations must have 120 ft. of clear distance between the last parking area and the curb line of the intersecting street. This clear distance provides for 50 ft. of taper, 40 ft. of bus stop, 5 ft. of clear distance to the crosswalk and 25 ft. to the curb line. The length of a bus stop serving 40 ft. and a 60 ft. long buses shall have a minimum length of 170 ft. starting at the bus stop sign to the curb line of the intersecting street. For mid block stops, there must be a clear distance of 153 ft. from parking space to parking space. The District requires a minimum of 110 ft. between bus stop signs.

29.14.2 Bus Pad Requirements

For Bus Pad locations, the Consultant should coordinate with WMATA. The minimum pad size shall be 10 ft. (wide) by 40 ft.(long). A mid block pad will be 10 ft. (wide) by 80 ft. (long). The pad shall be a minimum of 12 in. thick concrete in composite roadways with 10 inches of plain Portland Cement Concrete (PCC) base. The thickness of the bus pad in 10-inch reinforced concrete pavement will be 10 inches of reinforced concrete.

29.14.3 Parking Meters

The Project Manager will contact the Department's Mass Transit concerning parking meters impacting construction prior to the start of construction.

29.15 Sidewalk Cafes Located Within Public Space (Traffic Safety Division Requirement)

- Between the curb of the street and the edge line of the sidewalk café boundary, there must be a minimum 10 ft. of clear sidewalk provided for pedestrians passing along the sidewalk.
- No individual tree boxes can be located within this sidewalk area between the curb of the street and the edge line of the sidewalk café area, unless the 10 ft. clearance is met.
- Accessibility for wheelchairs users implies, adequate dimensioning of café aisles (4 ft. between tables), and spaces for routes leading to ramps and doorways, if stairs are blocking the way.
- If the cafes are not wheelchair accessible when located within the public space, permits will automatically be denied.
- Chain and/or Rope Barriers Surrounding Edge Line of Sidewalk Café:
    - Chain and/or rope barriers can be hazardous to pedestrians, especially visually impaired persons within the sidewalk areas. These barriers are difficult to see, especially when lower than 32 in. in height and at night. Visually impaired persons, who use a cane, are more easily able to detect chains and ropes when located at a height of 27 in. or less. Discretion should be used when designing chain or rope barriers, and a means should be devised to increase their detection, especially dark areas.
    - The bases of the poles and/or posts for the chain/rope barriers must not protrude within the clear sidewalk area. They must be located within the boundaries of the sidewalk café.

29.16 Accessible Spaces = The Minimum Number of Accessible Spaces

Total Parking in Lot	= Required Minimum Number of Accessible Spaces
1 to 25 spaces	= 1
26 to 50 spaces	= 2
51 to 75 spaces	= 3
76 to 100 spaces	= 4
101 to 150 spaces	= 5
151 to 200 spaces	= 6
201 to 300 spaces	= 7
301 to 400 spaces	= 8
501 to 1000 spaces	= 2% of total
1000 and over	= 20 plus 1 for each 100 over 1000

Source: U.S. Access Board, Americans with Disabilities Act, Accessibility Guidelines, U.S. Architectural and Transportation Barriers Compliance Board, Washington, D.C.

29.17 Universal Parking Space Design for Accessible Spaces within a Parking Lot

A disabled person requires more space to enter and exit a parking space.

- The "Universal Parking Space Design" recommends that all accessible spaces be 11 ft. width with a 5 ft. (*) adjacent striped aisle width.
- The access striped aisle width varies according to the type of vans they use. The private side and rear platform vans plus commercial vans, all require an 8 ft. (*) minimum adjacent aisle width.
- However, most private automobiles and side rotary vans require a minimum 5 ft. adjacent aisle width.
- All accessible parking spaces should have a painted handicap wheelchair symbol provided and signs mounted at the front of their spaces with the wheelchair symbol. These signs have a blue background with white symbols.
- There must be a minimum 5 ft. aisle between an accessible space and a regular 9 ft. wide parking space.
- All 90-degree angle parking spaces are 18 ft. long and require a standard adjacent 24 ft. wide aisle for maneuvering into and out of parking spaces.
- All 60-degree angle parking spaces are 17 ft. long and require a standard adjacent 17 ft. wide aisle for one-way travel direction.
- Accessible Parking spaces must be designed so that a handicap person does not travel within the maneuvering lane for vehicle traffic to reach the safe travel path to a building or other site location.

NOTE: All public street parallel parking spaces in Washington, DC are available to any motorist. There are no special handicap parking spaces provided. However, Traffic Safety Division recommends when parking in angle back-in public street parking spaces, that the end spaces adjacent to the corner crosswalks be made available to the handicap access vehicles. Handicap ramps are not permitted at the curb of the street, unless they are located on both sides of the street and they must be located within a striped crosswalk. When a visually impaired or blind person feels a handicap ramp adjacent to the curb of the street, it indicates to him that he can cross the street within a crosswalk and vehicles will yield to them.